

Appl. No. 10/658,961
Amtd. Dated Feb. 1, 2005
Reply to Office Action of Nov. 01, 2004

Amendments to the Drawings:

Please replace the second sheet of the drawings with the replacement sheet attached hereto. In the originally filed drawing sheet, FIGS. 3 and 4 were labeled the wrong way around. In the replacement drawing sheet, FIGS. 3 and 4 are correctly labeled and shown in their correct numerical sequence.

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A planar surface illuminator for use beneath a liquid crystal display panel, comprising:

a light guide plate comprising a bottom surface;

a plurality of light emitting diodes emitting Gaussian light irradiating the light guide plate, and defining shortfall areas in the light guide plate between each two adjacent light emitting diodes a plurality of point light sources irradiating the light guide plate, darkened areas of the light guide plate being formed adjacent to the point light sources; and

a number plurality of dot patterns dots formed on the bottom surface, wherein at least some of the dots dot patterns positioned at the darkened shortfall areas are made of melamine-based fluorescent particles and function as small light sources lighting the shortfall areas.

Claim 2 (original): The planar surface illuminator as described in claim 1, wherein the melamine-based fluorescent particles are polymerized with green fluorescent dye and melamine particles.

Claim 3 (original): The planar surface illuminator as described in claim 2, wherein excitation and emission wavelengths of the green fluorescent dye are respectively about 506 and 529 nanometers.

Claim 4 (original): The planar surface illuminator as described in claim 1, wherein the melamine-based fluorescent particles are polymerized with red fluorescent dye and melamine particles.

Claim 5 (original): The planar surface illuminator as described in claim 4, wherein excitation and emission wavelengths of the red fluorescent dye are respectively

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about 636 and 686 nanometers.

Claim 6 (original): The planar surface illuminator as described in claim 1, wherein the melamine-based fluorescent particles are polymerized with orange fluorescent dye and melamine particles.

Claim 7 (original): The planar surface illuminator as described in claim 6, wherein excitation and emission wavelengths of the orange fluorescent dye are respectively about 560 and 584 nanometers.

Claim 8 (original): The planar surface illuminator as described in claim 1, wherein each melamine-based fluorescent particle is a mixture of green, red and orange fluorescent dyes polymerized with melamine particles.

Claim 9 (currently amended): The planar surface illuminator as described in claim 1, wherein diameters of the melamine-based fluorescent particles are in a range of from 1 [[to 10]] to 10 microns.

Claim 10 (currently amended): The planar surface illuminator as described in claim 1, wherein the ~~dot patterns~~ dots are uniformly uniformly spaced apart on the bottom surface.

Claim 11 (currently amended): The planar surface illuminator as described in claim 1, wherein the ~~dot patterns~~ dots increase in size with increasing distance are ~~uniformly spaced on the bottom surface, and the further the dot patterns are away from the point light sources, the larger the diameter of the dot patterns are.~~

Claim 12-14 (cancelled)

Claim 15 (currently amended): A planar surface illuminator for use beneath a liquid crystal display panel, comprising:

a light guide plate comprising a bottom surface;

a plurality of light emitting diodes emitting Gaussian light irradiating the light guide plate, and defining shortfall areas in the light guide plate between each

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two adjacent light emitting diodes a plurality of point light sources irradiating the light guide plate, darkened areas of the light guide plate being formed adjacent to the point light sources; and

a number plurality of dot patterns dots formed on the bottom surface, wherein at least some of the dots are dot patterns coated with melamine-based fluorescent particles and are positioned at the darkened shortfall areas, and function as small light sources lighting the shortfall areas, for providing even brightness to the liquid crystal display panel.

Claim 16 (currently amended): The planar surface illuminator as described in claim 15, wherein the melamine-based fluorescent particles are polymerized with green fluorescent dye and melamine particles, and excitation and emission wavelengths of the green fluorescent dye are respectively about 506 and 529 nanometers.

Claim 17 (cancelled)

Claim 18 (currently amended): The planar surface illuminator as described in claim 15, wherein the melamine-based fluorescent particles are polymerized with red fluorescent dye and melamine particles, and excitation and emission wavelengths of the red fluorescent dye are respectively about 636 and 686 nanometers.

Claim 19 (currently amended): A planar surface illuminator for use beneath a liquid crystal display panel, comprising:

a light guide plate defining a side face, a bottom face, and a top face opposite to [[said]] the bottom face;

a plurality of point light sources located by the side face and spaced from one another along [[said]] the side face under a condition that each of said point light sources defines provides effective light exposure within a specific sector range so as to result in areas with thereof different brightness where the brighter define exposed areas are exposed under more effective light exposure while the darker in the light guide plate and shortfall areas are exposed under less effective light exposure in the light guide plate; and

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a plurality of ~~dot patterns~~ dots formed on the bottom face; wherein only some of said ~~dot patterns~~ dots, which are essentially located [[in]] at the ~~darker~~ shortfall areas, are equipped with fluorescent particles whereby uniform emission of light is obtained on the top face.

Claim 20 (new): The planar surface illuminator as described in claim 15, wherein the melamine-based fluorescent particles are polymerized with orange fluorescent dye and melamine particles, and excitation and emission wavelengths of the orange fluorescent dye are respectively about 560 and 584 nanometers.

Claim 21 (new): The planar surface illuminator as described in claim 15, wherein each melamine-based fluorescent particle is a mixture of green, red and orange fluorescent dyes polymerized with melamine particles.